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UNITED STATES
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HAROLD L. ICKES, SECRETARY

BUREAU OF MINES
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## INFORMATION CIRCULAR

# WORK OF THE BUREAU OF MINES SAFETY CARS IN THE PENNSYLVANIA ANTHRACITE REGION FROM 1934 TO 1939

BY

J. J. FORBES AND L. L. NAUS

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By J. J. Forbes[2] and L. L. Naus[3]

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[1] The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: Reprinted from Bureau of Mines Information Circular 7132."

[2] Supervising engineer, Safety Division, Bureau of Mines, U. S. Department of the Interior, Pittsburgh, Pa.

[3] Assistant mining engineer, Safety Division, Bureau of Mines, U. S. Department of the Interior, Wilkes-Barre, Pa.

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## INTRODUCTION

The original organic act establishing the Federal Bureau of Mines in 1910 and the amended act of 1913 indicated that promotion of the health and safety of mine workers was to be one of the chief functions[4] of the Bureau. Many of the field and laboratory studies pursued by the Bureau are designed to improve conditions under which miners must work. As the Bureau has no legal authority to enforce safety rules, it must rely upon cooperation of employers, employees, State mining or other departments, and labor organizations for success in promulgating its findings and making recommendations.

The staff of the Safety Division, which is essentially a service organization of the Bureau, is composed of 28 safety instructors, 29 engineers, 18 clersk, and 7 others engaged in promotion of an educational program in an effort to improve conditions in the mining industry. The work is directed from 14 safety stations in the United States and 1 in Alaska. The work of the personnel of the mine safety car that operates in the anthracite region of Pennsylvania was supervised and directed by the district engineer in charge of the Wilkes-Barre (Pa.) Safety Station.

The mine safety car traveled in the anthracite region from January 20, 1934, to September 27, 1939. Although the car did not visit every town, the services of the personnel were available to virtually every mining community of the anthracite region.

## ACKNOWLEDGMENTS

The writers extend their appreciation for the assistance and comments of S. H. Ash[5] in preparing this paper.

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[4] Harrington, D., Safety Work of the Bureau of Mines and Some of Its Results: Bureau of Mines Inf. Circ. 7070, 1939, 13 pp.
Harrington, D., Some of the Welfare Problems of the Mining Industry and What the Bureau of Mines Has Done About Them: Bureau of Mines Inf. Circ. 7071, 1939, 41 pp.

[5] District engineer, Safety Division, Bureau of Mines, U. S. Department of the Interior, Wilkes-Barre, Pa.

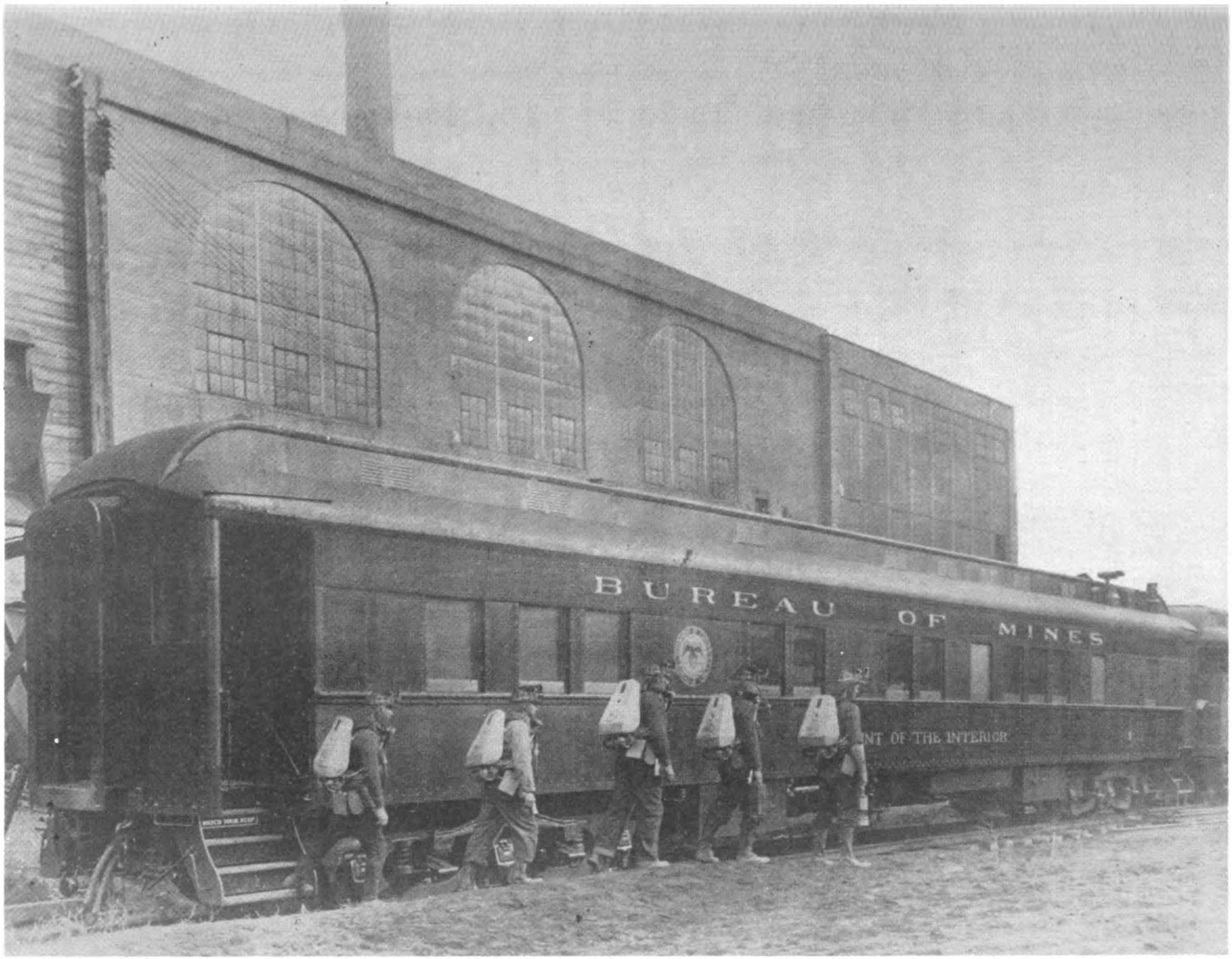

Figure 1.- Mine safety car of the Federal Bureau of Mines.

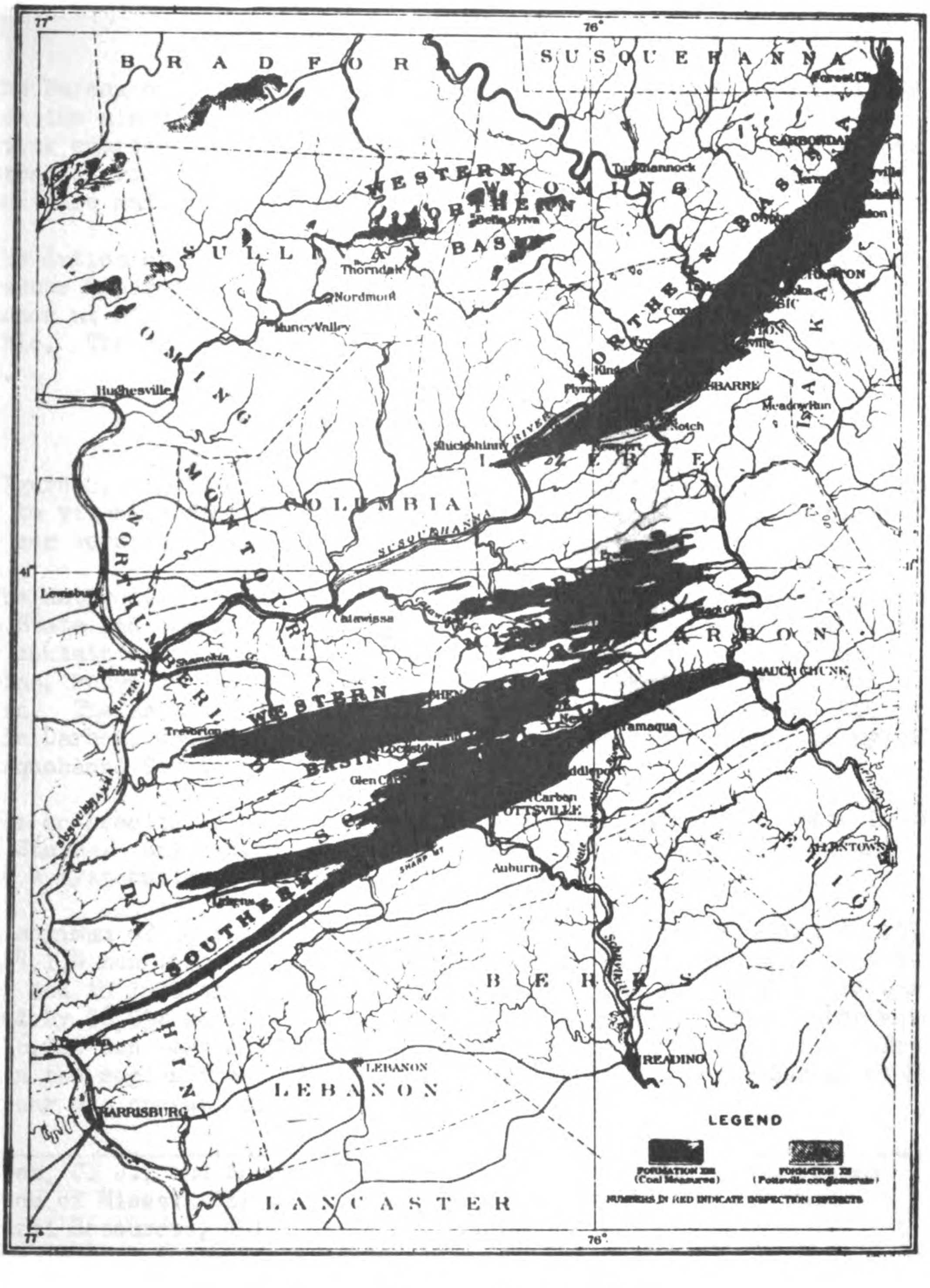

Figure 2.- Pennsylvania anthracite field.

## SAFETY CARS OF THE BUREAU OF MINES

The Bureau of Mines mine safety car[6] (shown in fig. 1) is utilized to reach the miner and interest him in safety. In its all-steel structure are living quarters for the car's personnel, office quarters, and a work or demonstration room in which the mine rescue apparatus and demonstration equipment are maintained and stored.

The duties of the car personnel include training miners in first aid, mine rescue apparatus and procedure, accident prevention, and rendering assistance at mine disasters, for which the car and its personnel are always available. The car may be transported wherever railroad facilities will permit.

## ANTHRACITE REGION OF PENNSYLVANIA

Figure 2, together with the following description,[7] will assist the reader to visualize the regions in which employees on the Bureau of Mines safety car were occupied.

The anthracite region of Pennsylvania lies in the east-central portion of the State and constitutes the only area of any importance in the United States containing anthracite. The areas in Pennsylvania are in four fields or basins, known as the Northern, Eastern Middle, Western Middle, and Southern. The anthracite fields proper comprise an area of about 480 square miles in Carbon, Columbia, Lackawanna, Luzerne, Northumberland, Schuylkill, and Susquehanna Counties.

The anthracite industry is probably the oldest mining industry in the United States. Anthracite was mined before the nineteenth century and reached a systematic-production basis about 1820.[8]

A maximum of nearly 100,000,000 tons of anthracite was mined in 1917, when 154,174 men were engaged in this industry. Production has since declined, and in 1938 slightly more than 46,000,000 tons of anthracite was produced by 96,998 men. The peak year for employment was 1914, when more than 176,000 men were engaged in anthracite mining in Pennsylvania. Employment[9] in the region from 1934 to 1939, during which time the Bureau of Mines safety car was operating, was as follows:

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[6] Forbes, J. J., and Ankeny, M. J., Safety Cars of the United States Bureau of Mines: Bureau of Mines Inf. Circ. 6435, 1931, 5 pp.

[7] Mineral Resources, 1912.

[8] Adams, W. W., Coal-mine Fatalities in the United States, 1920: Bureau of Mines Tech. Paper 288, 1921, 112 pp.

[9] Reports of the Pennsylvania Department of Mines.

| Year | Number of employees | | | | |
|---|---|---|---|---|---|
| | Northern field | Eastern Middle field | Western Middle field | Southern field | Total |
| 1934 | 62,689 | 11,399 | 19,373 | 12,800 | 106,261 |
| 1935 | 58,303 | 11,710 | 18,591 | 12,152 | 100,756 |
| 1936 | 56,100 | 12,452 | 19,450 | 11,534 | 99,536 |
| 1937 | 57,168 | 11,141 | 18,791 | 11,999 | 99,117 |
| 1938 | 55,629 | 11,104 | 17,796 | 12,469 | 96,998 |
| 1939 1/ | | | | | |

1/ Not available.

In the anthracite region mining is done under a wide variety of conditions on pitches ranging from flat to perpendicular and under all sorts of roof and floor conditions from good to poor. As many as 15 coal beds workable in whole or in part and separated from each other a few feet to many feet by the strata of sedimentary rock may be mined at a single mine or colliery. Minable virgin coal is mostly a thing of the past, and second, third, and even fourth and fifth mining is becoming more and more common over areas that were considered worked out years ago. The hazards to which miners are exposed have increased considerably in recent years owing to the fact that much of the work is being done in areas worked many years ago without regard to the future. The need for safety educational work to guard the health and safety of employees in the anthracite region has become more acute in an industry that has suffered many economic set-backs in the past 20 years.

The need of first-aid training for the anthracite miner was recognized many years ago. Before the turn of the twentieth century some of the physicians employed by the more progressive companies operating in the region were engaged in instructing first-aid crews at the mines, and undoubtedly the anthracite region originated the idea of first-aid training to alleviate suffering caused by accidents in mines. The crews practiced regularly and became proficient in giving first aid to the injured; this was continued for many years at a number of the mines but was confined mostly to the men of the first-aid crews. Elaborate underground first-aid stations or emergency hospitals still are maintained at many mines of the region; however, a miner seldom is injured close to a first-aid station or hospital. Experience over the years has proved that many relatively well trained first-aid men and a quickly available supply of first-aid materials, which can be transported readily to the scene of an accident, are the most satisfactory and beneficial assets yet devised for first-aid treatment in and around mines. With few exceptions, the manner of first-aid training in the anthracite region previous to the entrance of a Bureau of Mines safety car in 1934 closely approximated that established many years ago.

## EDUCATIONAL PROGRAM OF BUREAU OF MINES SAFETY CAR

At the time the Bureau of Mines safety car first began work in the anthracite region it was recognized that first-aid training constituted the most intimate and effective[10] method of presenting to the industry (both employer and employee) up-to-date health and safety data. Inasmuch as first-aid training always has been one of the principal safety educational activities of the Bureau of Mines, and in an effort since 1926 to instruct every miner in first aid or 100-percent first-aid training, the cooperative method[11] of training was adopted. Key-class groups for training instructors were given 30 hours of instruction, demonstration, and practice by a Bureau of Mines instructor in accordance with the accepted outline of the Bureau of Mines first-aid course. From the key-class groups, those having the necessary qualifications were selected as instructors to train groups of men under supervision of a Bureau representative. Enough instructors usually can be obtained from a key class to conduct training for a colliery or mine employing several hundred men. Where a mine employed approximately a thousand men or more, it was found advisable to train more than one key class, to avoid undue hardship on instructors. Success in conducting 100-percent first-aid training at operations employing a large number of men depended on the interest that could be maintained over an extended period of time.

## CONDITIONS RELATIVE TO FIRST-AID TRAINING PROGRAM

### Large-Scale Mining Operations

Inasmuch as about half of the approximately 300 collieries operating in the anthracite region employ more than 100 men, conditions are ideal for training large numbers. Of the collieries employing more than 100, the majority have pay rolls approximating 1,000. One colliery, the largest where 100-percent training was completed successfully, employed more than 2,800 men. A colliery may consist of a single mine opening or, more commonly, several mine openings that may be individual mines all controlled by a centralized official organization. It was generally found that the larger the operation, the more difficult it was to maintain interest long enough to complete 100-percent training. It was less difficult to complete 100-percent training where the period required for the general training was only a few weeks than it was at operations where a month or more was necessary to give the training. The most satisfactory way to conduct a first-aid training campaign at collieries employing more than 500 men is to train more than one key class, with members chosen from one or more closely related mine openings, and to try to maintain interest through fostering a friendly spirit of rivalry between mine openings and collieries. For example, first-aid training was done at three collieries of a company that operates eight large collieries in the region without successfully completing the training 100 percent. The fourth and largest colliery where the training was initiated was able, by assembling the employees according to related mine openings into groups of about 700 each and instructing four key classes, one for each group, to complete 100-percent training. The remaining collieries of this company completed 100-percent training with little or no difficulty. One-hundred percent training was completed at the first three

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[10] Harrington, D., Works cited in footnote 4.

[11] Forbes, J. J., Value of the Cooperative Method in First-Aid Training: Bureau of Mines Inf. Circ. 6803, 1934, 20 pp.

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collieries of a company operating 13 collieries and having pay rolls ranging from 700 to 1,400 employees. Of the remaining collieries, at all of which training was done, only the last two were successful in completing 100-percent training.

### Shift Work in the Anthracite Region

Approximately two-thirds of the men employed in the anthracite mines (which customarily operate on three shifts) change shifts every week. The plan of training adopted, with a few exceptions, was to conduct the training in five successive lessons beginning on Monday and ending on Friday of each week. This plan was adopted as the most logical and efficient to avoid extending the training over a period of 3 weeks, which would have resulted because of the changing shifts and dependence on public school and similar buildings, available only at night, for meeting places.

### Lack of Accommodations and Travel by Miners

The first-aid training program in the anthracite region was handicapped somewhat by a dearth of meeting places capable of accommodating large numbers of men. The anthracite region is in a densely populated area lacking the community halls common to many mining camps. Most anthracite miners live in towns or cities and some of them travel as far as 30 to 50 miles to and from work. The facts that many miners must travel such distances through more or less congested traffic and that it is necessary to depend on public school buildings, churches, and lodge and fire halls at hours that do not fit in very well with the miners' hours of work, result in inconveniences that militate against 100-percent training programs.

## SUMMARY OF FIRST-AID TRAINING PROGRAM

The training program by a Bureau of Mines safety car was begun in the Southern anthracite field. After this program was completed, training was begun in the Western Middle field and the car then proceeded into the Eastern Middle field, after which the Northern field was covered.

As shown by the following data compiled from reports and records of the mine safety car, the first-aid training program was conducted in virtually every mining community of the anthracite region. Although the car was not taken to every town, the places were strategically situated so that training could be conducted by the safety instructor at a number of towns within a reasonable area by using automobiles and busses to travel between the car and the classrooms. This was practiced throughout so that men might attend the classes with a minimum of travel and the Bureau instructors might supervise their training.

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TABLE 1. - Scope of Cooperative first-aid training, by fields

SOUTHERN FIELD

| Period | Car location | County and towns where training was conducted | Company and mine, or organization for which training was done |
|---|---|---|---|
| 1-20 to<br>3-22-34 | Minersville, Pa. | Schuylkill County<br>Minersville<br>Donaldson<br>Primrose | Pine Hill Coal Co.<br>Pine Hill colliery<br>Oak Hill colliery<br>Lytle Coal Co.<br>Lytle colliery<br>Case Twp. High School<br>St. Vincent's Parochial School<br>Minersville High School |
| 3-22 to<br>5-5-34 | Tremont, Pa. | Schuylkill County<br>Mt. Wolf<br>Tremont<br>Llewellyn<br>Westwood<br>Donaldson<br>Heggins<br>Joliett<br>Tower City | J. E. Baker Co. (quarry)<br>Sherman Coal Co.<br>Sherman colliery<br>Indian Head Anth., Inc.<br>Indian Head colliery<br>Hazle Brook Coal Co.<br>Westwood colliery |
| 5-5 to<br>6-15-34 | Williamstown, Pa. | Dauphin County<br>Williamstown<br>Lykens<br>Wiconisco<br>Spring Glen | Susquehanna Collieries Co.<br>Williamstown colliery |
| 6-15 to<br>7-28-34 | St. Clair, Pa. | Schuylkill County<br>St. Clair | Venezuela Gulf Co.<br>St. Clair Coal Co.<br>St. Clair colliery |
| 7-28 to<br>9-14-34 | Tower City, Pa. | Schuylkill County<br>Tower City<br>Seltzer City<br>Pine Grove<br>Reinerton<br>Tremont | Philadelphia & Reading Coal & Iron Co.<br>Brookside colliery |
| 9-14 to<br>11-3-34 | Coaldale, Pa. | Schuylkill County<br>Coaldale, Pa. | Lehigh Navigation Coal Co.<br>Coaldale colliery<br>Greenwood colliery<br>Coaldale school district |
| 11-3 to<br>1-7-35 | Lansford, Pa. | Carbon County<br>Lansford<br>Summit Hill<br>Schuylkill County<br>Coaldale | Lehigh Navigation Coal Co.<br>Lansford colliery<br>Summit Hill stripping<br>Lansford school district<br>Boy Scouts of America |
| 1-7 to<br>1-21-35 | Nesquehoning, Pa. | Carbon County<br>Nesquehoning<br>Mauch Chunk | Lehigh Navigation Coal Co.<br>Nesquehoning colliery |

| Period | Car location | County and towns where training was conducted | Company and mines, or organization for which training was done |
|---|---|---|---|
| 1-21 to<br>2-15-35 | Gilberton, Pa. | Schuylkill County<br>Gilberton, Pa. | Philadelphia & Reading Coal & Iron Co.<br>Gilberton colliery |
| 2-15 to<br>3-8-35 | Nesquehoning, Pa. | Carbon County<br>Nesquehoning, Pa. | Lehigh Navigation Coal Co.<br>Nesquehoning colliery |
| 3-8-to<br>4-20-35 | Tamaqua, Pa. | Schuylkill County<br>Tamaqua | Lehigh Navigation Coal Co.<br>Tamaqua colliery |
| 4-20 to<br>6-30-35 | Middleport, Pa. | Schuylkill County<br>Middle Port<br>New Philadelphia<br>Kaska<br>Tuscarora<br>Brockton<br>Port Carbon<br>Cumbola<br>St. Clair | Lehigh Navigation Coal Co.<br>Alliance colliery<br>Bell Collieries Co.<br>Bell colliery<br>Frackville Coal Co., Inc.<br>Lucanna colliery<br>St. Clair Coal Co.<br>St. Clair colliery<br>Haddock Mining Co.<br>Salem Hill colliery |
| 6-30 to<br>8-19-35 | Girardville, Pa. | Schuylkill County<br>Girardville<br>Minersville<br>Lavelle<br>Heggins<br>Dauphin County<br>Wiconisco<br>Northumberland County<br>Trevorton | Phila. & Reading Coal & Iron Co.<br>Hammond colliery<br>Susquehanna Collieries Co.<br>Williamstown colliery<br>Boy Scouts of America |
| | | WESTERN MIDDLE FIELD | |
| 8-19 to<br>12-5-35 | Mahanoy City, Pa. | Schuylkill County<br>Mahanoy City<br>Dauphin County<br>Williamstown | Phila. & Reading Coal & Iron Co.<br>Mahanoy City colliery<br>St. Nicholas central breaker<br>Suffolk colliery<br>Boston Run colliery<br>Tunnel Ridge colliery<br>Knickerbocker colliery<br>Maple Hill colliery<br>Gilberton colliery<br>Ellengowan colliery<br>Madiera, Hill & Co.<br>Stripping<br>Carey, Baxter & Kennedy Co.<br>Stripping<br>Lehigh Valley Coal Co.<br>Packer, No. 4, No. 5 collieries<br>Susquehanna Collieries Co.<br>Williamstown colliery<br>Boy Scouts of America |

| Period | Car location | County and towns where training was conducted | Company and mines, or organization for which training was done |
|---|---|---|---|
| 12-5-35<br>5-16-36 | Shenandoah, Pa. | Schuylkill County<br>Shenandoah<br>Mahanoy City<br>Dauphin County | Philadelphia & Reading Coal & Iron Co.<br>Knickerbocker colliery<br>St. Nicholas colliery<br>Ellengowan colliery<br>Suffolk colliery<br>W. Shenandoah colliery<br>Mahanoy colliery<br>Maple Hill colliery<br>Susquehanna Collieries Co.<br>Williamstown colliery |
| 5-16 to<br>8-11-36 | Natalie, Pa. | Northumberland County<br>Natalie<br>Marion Heights<br>Mt. Carmel<br>Shamokin<br>Elysburg<br>Kulpmont<br>Keiser | Colonial Collieries Co.<br>Colonial colliery |
| 8-11 to<br>11-16-36 | Shamokin, Pa. | Northumberland County<br>Shamokin, Pa.<br>Dauphin County<br>Wiconisco, Pa. | Philadelphia & Reading Coal & Iron Co.<br>Bear Valley colliery<br>Stevens Coal Co.<br>Cameron colliery<br>Susquehanna collieries Co.<br>Williamstown colliery |
| 11-16 to<br>5-15-37 | Frackville, Pa. | Schuylkill County<br>Morea<br>New Boston<br>Frackville<br>Maizeville<br>Gilberton<br>Shenandoah<br>Dauphin County<br>Gratz | Mill Creek Coal Co.<br>Morea colliery<br>Harleigh-Brookwood Coal Co.<br>Lawrence colliery<br>Thomas Colliery Co.<br>Kehley Run colliery<br>Philadelphia & Reading Coal & Iron Co.<br>Gilberton colliery<br>E. Bear Ridge Colliery Co.<br>E. Bear Ridge colliery<br>Susquehanna Collieries Co.<br>Williamstown colliery<br>Frackville High School<br>Shenandoah High School<br>Gilberton High School |
| 5-15 to<br>7-21-37 | Mt. Carmel | Northumberland County<br>Mt. Carmel<br>Shamokin | Philadelphia & Reading Coal & Iron Co.<br>Alaska colliery<br>Reliance colliery<br>Reading Railroad Co.<br>Shamokin shops |

| Period | Car location | County and towns where training was conducted | Company and mines, or organization for which training was done |
|---|---|---|---|
| 7-21 to 9-24-37 | Locust Gap | Northumberland County<br>Locust Gap<br>Trevorton<br>Mt. Carmel<br>Shamokin<br>Schuylkill County<br>Ashland<br>Lavelle<br>Tower City | Philadelphia & Reading Coal & Iron Co.<br>Locust Gap colliery<br>Potts colliery<br>Alaska colliery<br>Reliance colliery<br>Locust Summit breaker |
| | | EASTERN MIDDLE FIELD | |
| 9-24-37 to 1-10-38 | Jeddo, Pa. | Luzerne County<br>Jeddo<br>Freeland<br>Japan<br>Hazleton<br>Ebervale<br>Schuylkill County<br>Gilberton<br>Dauphin County<br>Lykens | Jeddo-Highland Coal Co.<br>Jeddo No. 5 colliery<br>Ebervale colliery<br>Jeddo No. 7 colliery<br>Philadelphia & Reading Coal & Iron Co.<br>Hammond colliery<br>Susquehanna Collieries Co.<br>Williamstown colliery |
| 1-10 to 2-18-38 | Lattimer Mines | Luzerne County<br>Lattimer Mines<br>Hazleton<br>Ebervale<br>Hollywood<br>Milnesville | Lattimer Coal Corporation<br>Lattimer colliery |
| | | NORTHERN FIELD | |
| 2-18 to 4-1-38 | Carbondale, Pa. | Lackawanna County<br>Carbondale<br>Simpson<br>Vandling<br>Forest City<br>Luzerne County<br>Duryea | Hudson Coal Co.<br>Coalbrook colliery |
| 4-1 to 5-6-38 | Jermyn, Pa. | Lackawanna County<br>Jermyn<br>Forest City<br>Carbondale<br>May field<br>Childs<br>Luzerne County<br>Hudson | Hudson Coal Co.<br>Jermyn colliery<br>Coalbrook colliery<br>Pine Ridge colliery<br>Delaware colliery |

| Period | Car location | County and towns where training was conducted | Company and mines, or organization for which training was done |
|---|---|---|---|
| 5-6 to<br>6-10-38 | Archbald, Pa. | Lackawanna County<br>Archbald<br>Jermyn<br>Mayfield | Hudson Coal Co.<br>Gravity Slope colliery<br>Jermyn colliery |
| 6-10 to<br>9-12-38 | Olyphant, Pa. | Lackawanna County<br>Olyphant | Hudson Coal Co.<br>Olyphant colliery<br>Eddy Creek colliery |
| 9-12-38<br>to 10-26-38 | Scranton, Pa. | Lackawanna County<br>Scranton | Hudson Coal Co.<br>Marvine colliery |
| 10-26 to<br>1-31-39 | Miners Mills, Pa. | Luzerne County<br>Miners Mills<br>Parsons<br>Laflin<br>Lackawanna County<br>Throop<br>Forest City | Hudson Coal Co.<br>Pine Ridge colliery<br>Delaware colliery<br>Laflin breaker<br>Volpe Coal Co.<br>Forest City colliery<br>B. M. Jennings Coal Co. |
| 1-31 to<br>9-27-39 | Pittston, Pa. | Luzerne County<br>Pittston<br>Wyoming<br>Hudson<br>Miners Mills<br>Parsons<br>Lackawanna County<br>Forest City<br>Carbondale<br>Scranton<br>Olyphant<br>Archbald<br>Jermyn | Pennsylvania Coal Co.<br>Ewen Colliery<br>Volpe Coal Co.<br>Forest City colliery<br>Hudson Coal Co.<br>Marvine colliery<br>Olyphant colliery<br>Gravity Slope colliery<br>Coalbrook colliery<br>Delaware colliery<br>Pine Ridge colliery<br>Jermyn colliery<br>Lehigh Valley Coal Co.<br>Dorrante colliery<br>Prospect colliery<br>Henry colliery<br>Northwest Coal Co.<br>Northwest colliery<br>DeAngelis Coal Co.<br>Boland colliery<br>Pearl Coal Co.<br>Richmondale colliery<br>Jermyn-Green Coal Co.<br>No. 14 colliery<br>Dial Rock Coal Co.<br>Dial Rock colliery<br>Greenridge Coal Co.<br>Green Ridge colliery<br>Giombetti Coal Co.<br>Rackett Brook colliery |

TABLE 2. - Summary of cooperative first-aid training

| | Fields | | | |
|---|---|---|---|---|
| | Southern | Western Middle | Eastern Middle | Northern |
| Companies ...... | 12 | 11 | 4 | 12 |
| Collieries ..... | 20 | 23 | 6 | 19 |
| Breakers ....... | - | 2 | - | 1 |
| Strippings ..... | - | 1 | - | - |
| Quarries ....... | 1 | - | - | - |
| Petroleum ...... | 1 | - | - | - |
| Railroad shops.. | | 1 | - | - |
| Schools ........ | 5 | 3 | - | - |
| Boy Scouts ..... | 1 | 1 | - | - |
| Towns .......... | 36 | 22 | 10 | 19 |

## ONE HUNDRED-PERCENT FIRST-AID TRAINING COMPLETED

One hundred-percent first-aid training was completed as follows:

| | |
|---|---|
| Northern field ............... | 62 |
| Eastern Middle field.......... | 0 |
| Western Middle field.......... | 8 |
| Southern field ............... | 5 |

Those who participated included entire collieries, individual mine openings or mines as part of a colliery, and two locals of the United Mine Workers of America. The number of employees trained ranged from as few as 50 to as many as 2,800. Several of the 100-percent first-aid training certificates were issued to organizations employing more than 1,000 men.

## MINE RESCUE TRAINING

In addition to the cooperative first-aid training program, the personnel of the mine safety car trained mine rescue crews and conducted the advanced mine rescue course. This training was done to familiarize qualified men at the mines with the care and use of mine rescue apparatus and equipment and the proper procedure for conducting mine rescue work in an actual emergency. Mine rescue apparatus and equipment on the car were used at mines where none was available. The following tables were compiled from reports and records of the mine safety cars.

TABLE 3. - Mine rescue training, by fields

SOUTHERN FIELD

| Period | Car location | County and towns where training was conducted | Company and operation for which training was done. |
|---|---|---|---|
| 3-22 to 5-5-34 | Tremont | Schuylkill County<br>Tremont | Indian Head Anth., Inc.<br>Indian Head Colliery<br>Hazlebrook Coal Co.<br>Westwood Colliery |
| 11-11-34 to 1-11-35 | Williamstown | Dauphin County<br>Williamstown | Susquehanna Collieries Co.<br>Williamstown Colliery |
| 4-20 to 6-30-35 | Middleport | Schuylkill County<br>Port Carbon | Haddock Mining Co.<br>Salem Hill Colliery |
| 6-30- to 8-19-35 | Girardville | Schuylkill County<br>Frackville | Colonial Colliery Co.<br>Colonial Colliery |
| WESTERN MIDDLE FIELD | | | |
| 8-19 to 12-5-35 | Mahanoy City | Schuylkill County<br>Mahanoy City<br>Locustdale | Philadelphia & Reading Coal & Iron Co.<br>Various collieries |
| 12-5-35 to 5-16-36 | Shenandoah | Schuylkill and Northumberland Counties<br>Shamokin<br>Mt. Carmel<br>Shenandoah | Philadelphia & Reading Coal & Iron Co.<br>Various collieries |
| 5-16 to 8-11-36 | Natalie | Schuylkill and Northumberland Counties<br>Mt. Carmel<br>Tower City<br>Natalie | Mine Safety Appliances Co.<br>Philadelphia & Reading Coal & Iron Co.<br>Alaska Colliery<br>Colonial Colliery Co.<br>Colonial Colliery |
| 8-11 to 11-16-36 | Shamokin | Northumberland County<br>Mt. Carmel | Susquehanna Collieries Co.<br>Pennsylvania Colliery |
| 11-16-36 to 5-15-37 | Frackville | Schuylkill County<br>Frackville<br>Shenandoah | Mill Creek Coal Co.<br>Morea Colliery<br>Thomas Colliery Co.<br>Kehley Run Colliery<br>Colonial Colliery Co.<br>Colonial Colliery |
| 5-6 to 6-10-38 | Archbald | Lackawanna County<br>Scranton, Pa. | Hudson Coal Co.<br>Various collieries |
| 1-31 to 9-27-39 | Pittston, Pa. | Lackawanna-Luzerne<br>Scranton Hudson | Hudson Coal Co.<br>Various collieries |

TABLE 4. - Summary of training in mine rescue

| | Fields | | | |
|---|---|---|---|---|
| | Southern | Western Middle | Eastern Middle | Northern |
| Companies | 5 | 6 | - | 1 |
| Collieries | 5 | 7 | - | 9 |
| Towns | 4 | 8 | - | 2 |
| Advanced mine rescue | 1 | | | |

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Two classes in advanced mine rescue training were handled, and one mine rescue instructor's letter certificate was recommended by the mine safety car's personnel.

## CERTIFICATES RECOMMENDED

The widespread interest created in the anthracite region by the educational programs promoted by the Bureau of Mines in cooperation with the anthracite industry, State department of mines, and labor organizations is exemplified by the considerable number of certificates recommended in a region where large-scale instruction of this type was not attempted before 1934.

TABLE 5. - Certificates recommended

| | Fields | | | |
|---|---|---|---|---|
| | Northern | Eastern Middle | Western Middle | Southern |
| Initial training: | | | | |
| First aid....... | 448 | 590 | 217 | 766 |
| Mine rescue..... | 16 | 94 | 0 | 6 |
| Combination..... | 0 | 17 | 0 | 0 |
| Cooperative initial training: | | | | |
| First aid....... | 9,403 | 11,419 | 608 | 12,839 |
| Mine rescue..... | 17 | 0 | 0 | 8 |
| Combination..... | 0 | 0 | 0 | 0 |
| Additional training: | | | | |
| First aid....... | 121 | 59 | 10 | 419 |
| Mine rescue..... | 5 | 30 | 0 | 0 |
| Combination..... | 0 | 4 | 0 | 0 |
| Cooperative additional training: | | | | |
| First aid....... | 562 | 101 | 4 | 493 |
| Mine rescue..... | 0 | 2 | 0 | 7 |
| Combination..... | 0 | 0 | 0 | 0 |
| Instructors: | | | | |
| New............. | 591 | 395 | 49 | 292 |
| Renewals........ | 13 | 1 | 0 | 21 |

## MINE FIRES AND EXPLOSIONS

While the Bureau of Mines safety car was in the anthracite region, its personnel assisted with mine rescue and recovery at three major mine disasters.

The first disaster was that of the Gilberton Colliery of the Philadelphia & Reading Coal & Iron Co. at Gilberton, Pa., on January 21, 1935. Thirteen men were killed and 38 injured, 30 of whom were taken to hospitals for further treatment after having been overcome by carbon monoxide and having suffered burns and minor injuries.

Aid was also given in connection with the explosion in the mine of the St. Clair Colliery, St. Clair, Pa., on April 27, 1938. Seven men were killed immediately, and another died later when an accumulation of explosive gas was ignited and exploded. Ten other persons were injured but survived.

The third disaster was that of the Bulter Slope of the Volpe Coal Co., Pittston, Pa., on June 2, 1938. Eight men were killed and 8 men injured in this explosion. Two of the injured men died subsequently.

Assistance was lent at a small mine fire at the Williamstown colliery of the Susquehanna Collieries Co., Williamstown, Pa., and the Pine Hill colliery of the Pine Hill Coal Co., Minersville, Pa., in fighting a large mine fire.

## OTHER ACTIVITIES

The activities of the personnel of the mine safety car included attendance at numerous safety meetings and meetings of civic organizations; assisting with the promotion and organization of a chapter of the Holmes Safety Association; conducting investigations relative to the health and safety of miners; observing operating conditions at mines and preparation plants; training first-aid teams; and participating in first-aid contests, the first to be held in the anthracite region for many years.

## CONCLUSIONS

First-aid training programs have been supported successfully by employers and employees during periods of idle working time and periods of labor interruptions. A cooperative first-aid training program was begun at one colliery, and the majority of more than 1,000 men employed at the colliery were trained during a strike. This colliery successfully completed 100-percent training.

The spirit of rivalry between collieries of the same company or between integral parts of the same colliery has been chiefly responsible for maintaining the interest necessary for success in 100-percent first-aid training. Although it may be more or less commonly recognized that first-aid training is a valuable tool, it is now definitely known to be valuable for all employed in or about mines or elsewhere; and while physical or other difficulties are likely to be experienced in trying to complete 100-percent training successfully, these can be overcome by stimulating a spirit of rivalry or possibly by other methods.

Interest in the educational programs of the Bureau of Mines was manifested by some of the larger operators employing approximately 50 percent of the men in the anthracite region, as well as the smaller, so-called independent operators. For some reason the services of the mine safety car and its personnel seemed less acceptable to the small independent operators than to the larger operators, though a representative number of the more progressive independents availed themselves of them.

The interest created by the program has been largely responsible for the increase in number of requests for first-aid training from the independent operators recently, and these programs have been initiated largely by the officials of the colliery or operating company.

Men qualified to instruct classes in first aid have been left to continue the first-aid work upon completion of training programs at mines or collieries. The result of this policy has already become noticeable at collieries of at least one of the large companies operating in the region, which have begun an annual retraining program.

Interest in training and maintaining first-aid teams has been created to the extent that in October 1939 the first competitive first-aid contest for many years was held in the anthracite region. This contest included teams from collieries of one company. The teams representing the collieries were chosen by competition. The popularity of team training and first-aid contests has been revived to the extent that since January 1, 1940, no fewer than 10 companies operating 25 collieries in the region have begun training first-aid teams in preparation for such contests.

Of far greater importance are the several applications of practical first aid in which lessons learned by the miners in first-aid class have been used to save lives of fellow workmen and others and in alleviating pain and suffering of injured persons. It is only fitting that the mining region where first aid was started should continue from the point where it ceased and use every opportunity to guard the health and safety of those earning a livelihood in and about the anthracite mines.